

INTERNATIONAL SEARCH REPORT

International application No.

PCT/IB03/03470

A. CLASSIFICATION OF SUBJECT MATTER

Int.Cl⁷ A61K45/00, 31/519, 31/55, 31/7088, 38/17, 39/395, 48/00,
A61P11/06, 43/00, C07D401/14, 403/06, 417/14, 471/04,
519/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

Int.Cl⁷ A61K45/00-45/08, 31/00-31/80, 38/00-38/42, 39/395, 48/00,
A61P1/00-43/00, C07D401/00-401/14, 403/00-403/06,
417/00-417/14, 471/00-471/04, 519/00

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

CAPLUS (STN), REGISTRY (STN), MEDLINE (STN), EMBASE (STN), BIOSIS (STN),
BIOTECHABS (STN), WPI (DIALOG), JSTPLUS (JOIS), JMEDPLUS (JOIS),
DDBJ/GanBank/EMBL, SwissProt/PIR/PDB, GeneSeq

C. DOCUMENTS CONSIDERED TO BE RELEVANT

| Category* | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
|-----------|--|-----------------------|
| X A | WO 02/061087 A2 (LIFESPAN BIOSCIENCES, INC.), 08 August, 2002 (08.08.02), Claims; [265] to [266]; sequence Nos. 272, 273 (Family: none) | 1-3, 14-16 4-8, 10 |
| A | WO 00/22129 A1 (ARENA PHARMACEUTICALS, INC.), 20 April, 2000 (20.04.00), & AU 9964307 A & EP 1121431 A1 & US 2003/0023069 A1 & CN 1398298 A | 1-8, 10, 14-16 |
| A | HEIBER, M. et al., Isolation of Three Novel Human Encoding G Protein-Coupled Receptors., DNA Cell Biol., 1995, 14(1), pages 25 to 35 | 1-8, 10, 14-16 |

☒ Further documents are listed in the continuation of Box C.☐ See patent family annex.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search
11 December, 2003 (11.12.03)Date of mailing of the international search report
24 December, 2003 (24.12.03)Name and mailing address of the ISA/
Japanese Patent Office

Authorized officer

Facsimile No.

Telephone No.

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C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

| Category* | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
|-----------|--|-----------------------|
| A | MAHADEVAN, M.S. et al., Isolation of a Novel G Protein-Coupled Receptor(GPR4) Localized to Chromosome 19q13.3. Genomics, 1995, 30, pages 84 to 88 | 1-8,10,14-16 |
| A | ZHU, K. et al., Sphingosylphosphorylcholine and Lyso-phosphatidylcholine Are Ligands for the G Protein-coupled Receptor GPR4., J.Biol.Chem., 2001, 276(44), pages 41325 to 41335 | 1-8,10,14-16 |
| A | EP 549352 A2 (KYOWA HAKKO KOGYO CO., LTD.), 30 June, 1993 (30.06.93), & JP 6-228065 A & US 5378701 A & US 5478840 A | 4-8,10 |
| A | EP 325755 A1 (KYOWA HAKKO KOGYO CO., LTD.), 02 August, 1989 (02.08.89), & JP 1-308274 A & AU 8826711 A & US 4994463 A & US 5143922 A & US 5302602 A | 4-8,10 |
| A | JP 9-40662 A (KYOWA HAKKO KOGYO CO., LTD.), 10 February, 1997 (10.02.97), (Family: none) | 4-8,10 |
| A | NISHIYA, Y., SUGIMOTO, S. et al., Effects of Various Antihyper-tensive Drugs on the Function of Osteoblast., Biol.Pharm.Bull., 2001, 24(6), pages 628 to 633 | 4-8,10 |

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Box I Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☒ Claims Nos.: 9, 11-13

because they relate to subject matter not required to be searched by this Authority, namely:

Claims 9 and 11 to 13 pertain to methods for treatment of the human body by therapy (PCT Article 17(2)(a)(i), PCT Rule 39.1(iv)).

2. ☐ Claims Nos.:

because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:

3. ☐ Claims Nos.:

because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

The technical matter common to claims 1-3 and 14-16 is as set forth in claim 1, while that common to claims 4-8 and 10 is prevention and/or treatment of asthma by using a compound set forth in claim 4 as the active ingredient. Although the technical matter common to both is prevention and/or treatment of asthma, this matter is widely appreciated by a person skilled in the art (see, e.g., WO 02/061087 A2). Thus, the technical matter is not a special technical feature, and the two groups of inventions are not considered as being so linked as to form a single general inventive concept.

1. ☒ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.

2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.

3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:

4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest ☐ The additional search fees were accompanied by the applicant's protest.

☒ No protest accompanied the payment of additional search fees.